JUPITER
COMPUTER SYSTEM

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Wave Mate

THE UNIVERSAL CARD PHILOSOPHY

All Jupiter computer components are based on the principle of the universal wire wrap card. These cards have been perfected by Wave Mate over the last five years. Many Jupiter computer users have taken advantage of this unique card to add custom interfaces or modify existing ones to their specific needs.

Many advantages can be gained by having a computer system built with the Wave Mate universal wire wrap card. First, the card is small in size, insuring the modularity and easy maintenance of your system. Second each card has a unique power distribution technique which increases the overall reliability of your system. Third, all components are in gold contact sockets which increase reliability and maintainability. Last, the main circuitry is applied by wire wrapping. This highly reliable solderless connection technique is more rugged than printed circuit wiring and the circuitry can be changed to incorporate the latest advances in electronics and designs. This last feature is a guard against obsolescence in this fast changing world of electronics.

THE UNIVERSAL BUS PHILOSOPHY

The Jupiter computer system is built around a processor independent universal bus. This bus supports most microprocessor designs with a minimum of support circuitry. The true beauty of this design is the simplicity with which Large Scale Integrated circuits (LSI) can be connected to the computer system. In most cases the interface circuitry requires only two small scale gates. Reducing the number of components increases the modularity and reliability of the system.

The Jupiter bus supports full multi-level interrupt and Direct Memory Access (DMA) capabilities.

THE UNIVERSAL SOFTWARE PHILOSOPHY

Because the Jupiter computer system is so modular and has such a rich mixture of compatible interfaces, any conventional approach to software would be too confining. The JOVE operating system was developed to alleviate this problem. One version of JOVE exists for each processor offered for the Jupiter system. The JOVE operating system is built to be modular to the extent that the hardware is modular. The operating system configuration is pieced together by the user to match his hardware configuration through a powerful system generation program. If you desired you could have ten different configurations of your system at the same time.

Other software developed by Wave Mate is designed to be as processor-independent as possible with a compiling technique called MICRO-DEL.
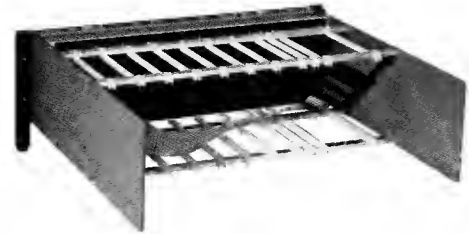
JUPITER COMPUTER MAINFRAMES

The Jupiter Mainframe unit provides you with the basic mechanical and electrical structure for building a complete computer system. The mainframe units come complete with a power supply, an eleven module backplane, a front panel and a central processing unit.


JUPITER II AR   The 'AR' mainframe system is the standard 19 inch rack mount version. This type of mounting is ideal for integration in an industrial application. It is also well suited for mounting into the Jupiter Desk for home or office environment. The Jupiter II mainframe utilizes the 6800 processor on the CPU card.

JUPITER III AR   The Jupiter III AR mainframe is a rack mount version utilizing the Z80 processor on the CPU card.

JUPITER II AT   The 'AT' mainframe system is the table top version incorporating the Wave Mate 'Stac-Pac' cases. The Stac-Pac cabinets allow you the freedom of having individual desk top cases or stacking the other Jupiter family products (like the CRT or Disk) into one integral unit. This way the correct balance between desk space and height can be achieved for any application. The Jupiter II mainframe utilizes the 6800 processor on the CPU card.

JUPITER III AT   The Jupiter III AT mainframe is a table top version utilizing the Z80 processor on the CPU card.
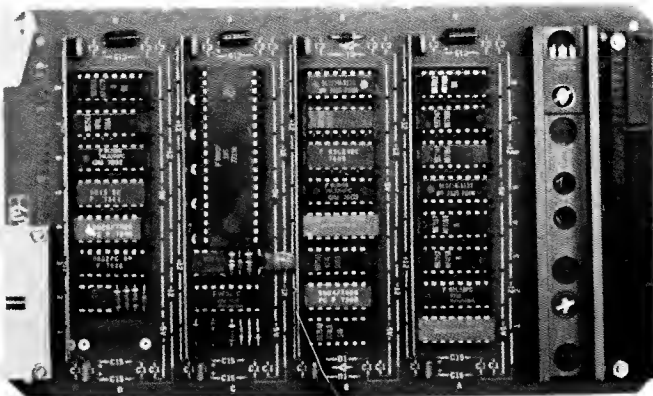
CPU   The central processing unit module contains all the support circuitry to run the Jupiter System Bus in addition to the CPU itself. Eight priority interrupt levels, eight DMA channels and automatic memory refresh circuitry are all standard features. These increase the capabilities of the Jupiter System far beyond those usually found in a small computer system. Both 6800 and Z80 processors are available. This is made possible by the universal nature of the Jupiter bus system. The CPU is contained on a single plug-in module.

FRONT PANEL   The Jupiter front panel provides the operator with all the information necessary to monitor and control the internal operation of the computer. The controls provided allow the operator to examine the program execution address, single cycle, interrupt, reset and master reset the computer.

POWER SUPPLY   The Jupiter Power Supply is designed to keep your computer system running even under the most severe power conditions. It is immune to both high and low frequency noise that can stop other computers in their tracks. All inputs and outputs are protected. Your system will remain completely operational even in brownouts. The Jupiter Power Supply plugs into three module spaces.
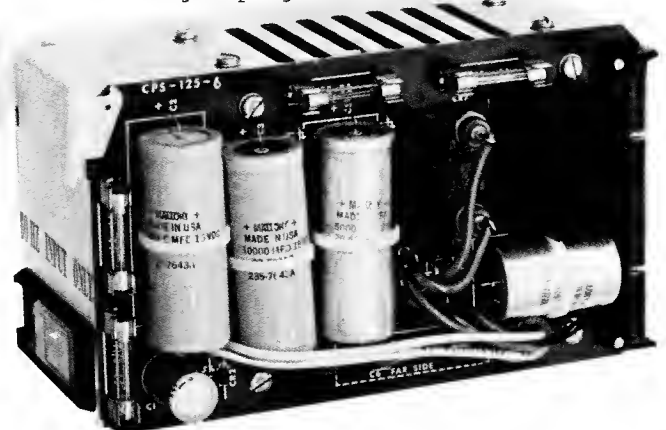
SYSTEM MONITOR CARDS

The Jupiter system monitor cards provide the EPROM (Erasable and Programable Read Only Memory) necessary for the operation of the JOVE Operating System. The JOVE Operating System Software is described in the Software section and must be ordered separately. The more EPROM that is ordered, the less RAM will be required for the operating system. The JOVE Operating System requires a minimum of 2K bytes of EPROM. Some of the system monitor cards are designed to include an input or output function to increase the packaging density of the system.

SDM-125-2/3 The System Debug Monitor card contains 2K or 3K bytes of EPROM memory. It also contains a 17 line address comparator and breakpoint logic (useful for debugging machine language programs).

SRM-125-2/8 The Static ROM Monitor card contains from 2K bytes to 8K bytes of EPROM memory. This card offers the most modular approach to system configuration.

RRS-027-2 The ROM/RAM/Serial card contains 2K bytes of EPROM memory and one RS232-C Serial interface. Cables must be ordered separately.

RRS-027-2-4 Same as the RRS-027-2, but includes 4K bytes of static RAM. This card contains all the basic functions for a complete computer system when combined with a Jupiter mainframe system and a serial terminal.
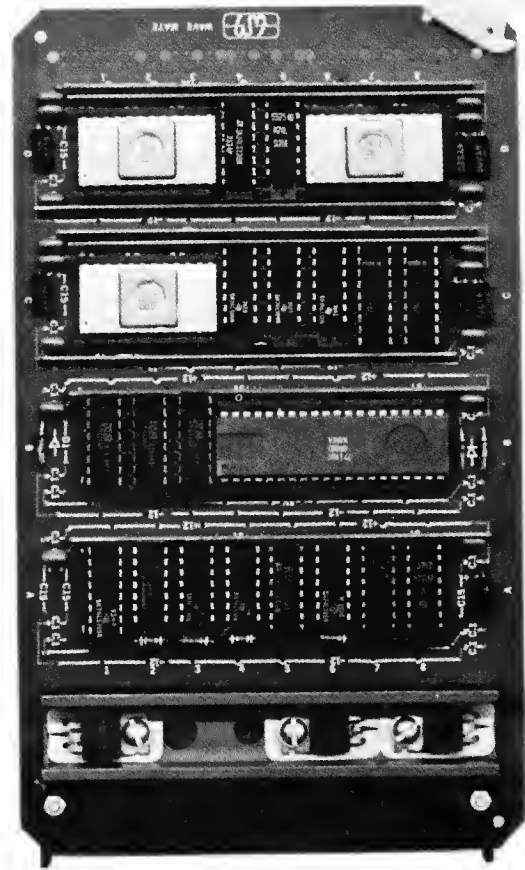
SYSTEM MEMORY

The Jupiter system memory cards are designed to put the most amount of memory on a single card. Dynamic memory chips are used in the memory boards because they generate very little heat, thereby increasing their reliability.

DMM-067-4 This memory card contains 4K bytes of RAM directly expandable to 8K or 20K. This board contains enough memory for special purpose controller applications.

DMM-067-8 This memory card contains 8K bytes of RAM. This is enough memory to run most machine language application programs and small programs in higher level languages.

DMM-067-16 This card contains 16K bytes of RAM easily expandable to 20K or 32K. 16K bytes will allow you to run most higher level languages.

DMM-067-20 This card contains 20K bytes of RAM. This is enough for most medium scale development and higher level language usage.

DMM-067-32 This card contains 32K bytes of RAM. 32K of memory allows virtually any small business program written in a higher level language to be run, including operation with the disk for very large amounts of data.
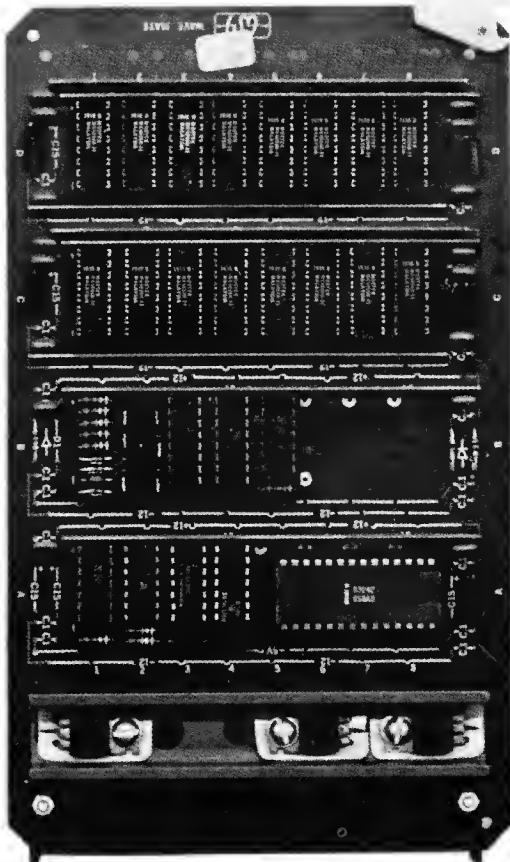
JUPITER VIDEO TERMINALS

Jupiter Video Terminals offer the utmost in flexibility and economy. All are built on the idea of dual-ported static memories. This provides the greatest transfer rates with the least loading on the Jupiter Bus.

MONITOR   The video monitor gives you a sharp 12 inch diagonal picture. The picture owes its crystal clarity to an amazing 22 MHZ video bandwidth. The monitor is housed in a Wave Mate 'Table-Top' or 'Stac-Pac' case.

KEYBOARD The keyboard is a delight to use. The main keys are arranged and sculptured to be the same as a standard Selectric typewriter, making it easy to switch between keyboards. In addition to the Selectric keys are the keys required to generate the upper/lower case ASCII character set. A 10 key calculator entry pad is also provided for numeric data entry. The keyboard has the feel of a Selectric, but has no contacts in the switches. It is done electronically for reliability.

TV OPTION The TV set option consists of a modified 12 inch diagonal TV set. The video bandwidth is around 7 MHZ.

TERMINAL-125 TV
        This terminal has 32 lines of 64 characters. Upper and lower case characters are displayed. Graphics are displayed on a 128 by 96 dot matrix. This terminal has a modified TV set as the display. Takes two module spaces in the Jupiter cage.

TERMINAL-125 TM
        This terminal is like a TERMINAL-125 TV but comes with a Table-Top 12 inch monitor.

TERMINAL-125 TS
        This terminal is like a TERMINAL-125 TV but comes with a Stac-Pac 12 inch monitor.

TERMINAL-126 TM
        This terminal has 32 lines of 64 characters. Upper and lower case characters are displayed. Each character position may be individually reversed from black on white to white on black. This is especially useful for forms entry. This terminal comes with a Table-Top 12 inch monitor. Takes two slots in the Jupiter cage.

TERMINAL-126 TS
        This terminal is like a TERMINAL-126 TM but comes with a Stac-Pac 12 inch monitor.

TERMINAL-047 TM
        Same as TERMINAL-126 TM but provides 16 lines of 96 characters.

TERMINAL-047 TS
        Same as TERMINAL-126 TS but provides 16 lines of 96 characters.

TERMINAL-027 TM
        Same as TERMINAL-126 TM but provides 16 lines of 64 characters with a 12 inch Table-Top monitor. Requires one module space in the Jupiter cage.

TERMINAL-027 TS
        Same as TERMINAL-027 TM but comes with a Stac-Pac 12 inch monitor.

TERMINAL-027 TV
   Same as TERMINAL-027 TM but comes with a modified 12 inch TV set.

JUPITER AUDIO CASSETTES

The Jupiter dual audio cassette storage system is the most economical form of mass storage. This unit serves as a complete paper tape replacement. One cassette player is used as a tape reader while a second unit may be used as a tape writer. In this way files may be read from one tape, modified, and rewritten onto a new tape. Each tape drive is started and stopped independently by the Jupiter computer. The data is recorded at 300 baud Kansas City standard format or 1200 baud (110 characters per second).

CASSETTE-125 Two audio cassette drives and interface are provided. The cassette interface takes one module space in the Jupiter cage.
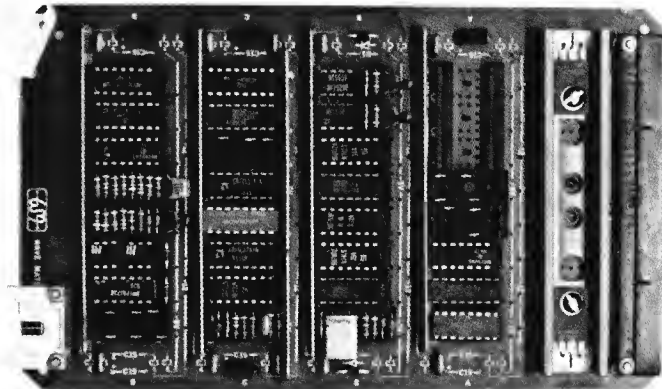
JUPITER DUAL DISK SYSTEM

The Jupiter dual floppy disk system provides the ultimate in floppy disk storage. Two full sized floppy disk drives are housed in only 5-1/4 inches of height. This drive uses the state-of-the-art linear positioning system that is several times faster and more accurate than other drives. Each disk is soft sectored and holds 315,392 bytes of information. Average seek time is only 33 milliseconds and data can be read at a rate of 8K bytes per second.

POWER SUPPLY The Jupiter disk power supply has the same high quality construction and performance as the Jupiter mainframe power supply.

INTERFACE The Jupiter floppy disk interface requires only one module space in the Jupiter cage, but can handle four floppy disk drives. All transfers of data to and from the disk take place through a single DMA channel. If no transfers have taken place for 15 seconds, the spindle motors on the drive will automatically shut down to reduce wear and increase the life expectancy of the media.

DISK-027R Dual drive disk system in a rack mount case. This system is well suited for industrial mounting or inclusion into a Jupiter Desk system. Comes with a six foot interface cable.

DISK-027T Dual drive disk system in a handsome table top cabinet. This system may be set beside or on top of a Jupiter 'AT' system. Comes with a six foot interface cable.

DISK-027S Dual drive disk system in the Wave Mate 'Stac-Pac' enclosure. This unit comes with a two foot interface cable and two mounting rails for integrating it into one unit with a Jupiter 'AT' system.
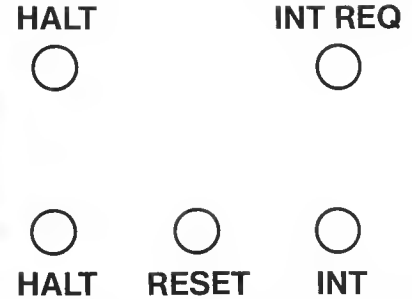
JUPITER PRINTERS

PRINTER-126   This Daisy Wheel Printer can solve most of
              the problems of small business and word
              processing applications. The print quality is
              exceptional for letter writing and copy to be
              duplicated. The printing speed is moderate
              for solid text but very fast for scattered
              text such as invoices and forms. The printer
              interface takes one module space   in   the
              Jupiter cage   and provides   an additional
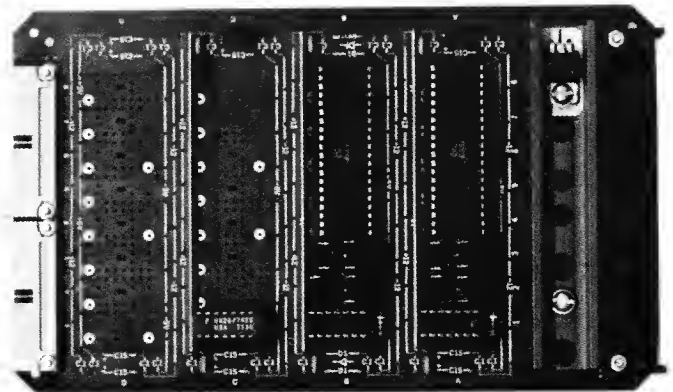   RS-232-C serial interface.
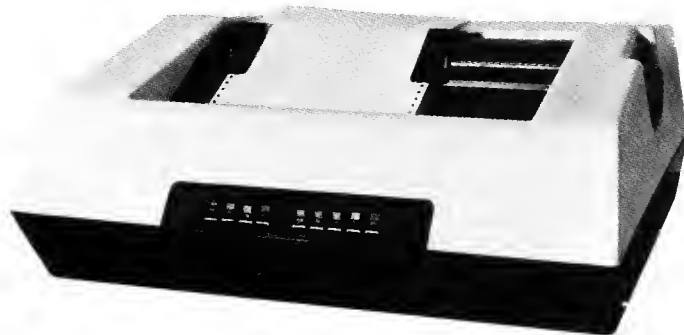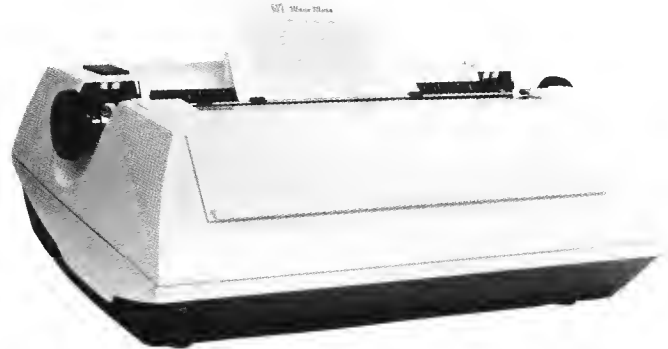
PRINTER-047 This Matrix Printer can print solid text
at 120 characters per second, making it ideal
for applications that require much printing
like mailing lists, invoices, statements, etc.
Upper and lower case characters are standard.
Requires one RS-232-C serial interface from
the Jupiter computer.

INTERFACES

The Jupiter family contains a   large number   of
interfaces, many of which are too specialized to
mention here. Each module takes one slot in the
Jupiter Mainframe.

DPD-125   The Dual Parallel Data interface provides four
          independent eight bit data channels. Each
          channel may be selected for input or output
          under software control. Each channel has two
          extra lines for handshaking and interrupting
          the computer. Only one half of the module is
          used, so custom interfaces or termination
          circuitry may be added for other applications.
          Cables must be ordered separately.

DSD-125   The Dual Serial Data interface converts
          parallel data from the computer to RS-232-C
          serial data.   All standard functions are
          provided for handshaking. 16 selectable baud
          rates are provided by a crystal oscillator.
          Two completely independent interfaces are
          provided. Cables must be ordered separately.
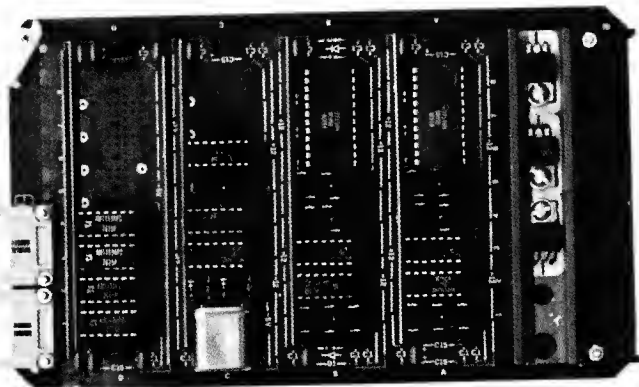
SPI-027   The Serial/Parallel Interface has one RS-232-C
          serial interface as in the DSD-125, and two
          independent eight bit parallel data channels
          as in the DPD-125. One quarter of the card is
          spare for custom interfaces to be added.
          Cables must be ordered separately.
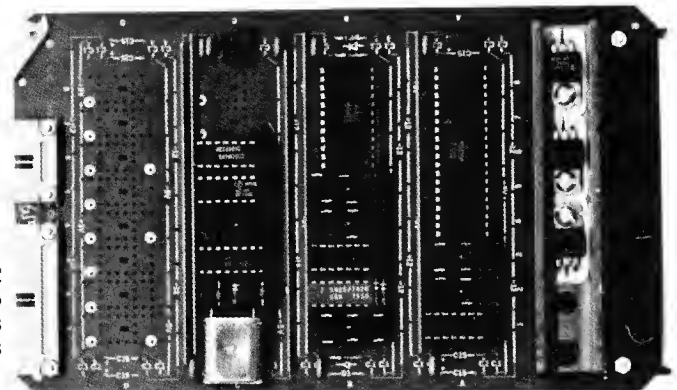
JUPITER SOFTWARE

JOVE OS   The JOVE Operating System allows users to control any device on a non-interrupt driven, device oriented, single-user system. The basic portions of the JOVE Operating System are programmed into EPROM on the System Monitor card. Extended operating system commands and capabilities are loaded into the RAM memory from a cassette or floppy disk. The JOVE Operating Systems come with a 4 month free maintenance period. Two versions of JOVE OS are available, one for the Z80 processor and one for the 6800 processor.

JOVE USER'S MANUAL   The JOVE USER'S MANUAL contains a full description of the programming and use of the JOVE Operating Systems. This manual comes with purchase of the software.

MAINTENANCE SUPPORT FOR JOVE   Maintenance support is available on a one year renewable basis. Maintenance cost is per mailing address, not per system. Maintenance service will correct software to operate as documented or document software limitations. The only cost incurred by covered systems is media, if any.

INTERNALLY SOUND!
(not just a face lift.)

BASIC III   The BASIC III software package provides a Text Editor, MACRO Assembler, Text Output Processor, and a BASIC Interpreter. All programs run under JOVE OS on the Z80 processor.

BASIC II   The BASIC II software package provides a Text Editor, Assembler, Byte-String BASIC, and a BASIC Interpreter. All programs run under JOVE OS on the 6800.

SDBASIC II   SDBASIC II is a BASIC Compiler designed to operate with the 6800 processor. The BASIC II package is required for editing input and assembling the output of the compiler. Compiled programs will run under JOVE OS.
          SDBASIC II requires a nondisclosure agreement. SDBASIC II comes with a one year maintenance agreement.